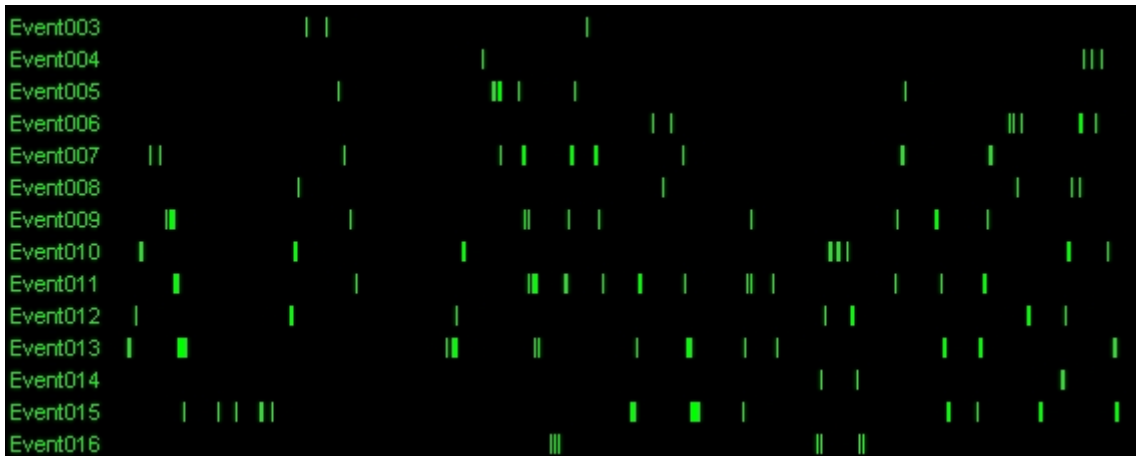


Digital Input Troubleshooting Guide

For the Plexon MAP System



Plexon Inc

support@plexon.com

Introduction and Terminology

The Digital Input (DI) board is a daughter board mounted to the Multichannel Acquisition Processor (MAP) system DSP board. Its purpose is to receive TTL pulses from external systems to be time stamped as events alongside neural data acquisition. There are three modes that this board can acquire events:

Mode 1: 14 individual events (events 3 through 16)

Mode 2: 8 individual events (events 3 through 10) and an 8-bit strobed word

Mode 3: 15-bit strobed word

There is documentation on the Plexon website that goes into detail of how to set the modes and use the DI board: <http://www.plexon.com/assets/pdf/DigitalInput.pdf>

This document will cover some common problems and troubleshooting techniques.

Hardware Components

There are two types of DSP daughter boards, one for autonomous digital output (DO) of spike firing, and one for digital input (DI). The DI board has 26 pins, and a red LED at the bottom of its input connector.

The red LED will blink when TTL events or a strobed word is registered.



Software Components

Digital inputs are sent straight to the MAP Server's memory buffer and can be read by software clients. SortClient (the primary MAP control software and data viewing client) can view events, and record them to the .plx file format alongside neural data.

Please Note: SortClient will record all events, even if you don't choose to display them in the analog display. See the RASPUTIN manual for information on how to view event data in SortClient.

Warning

Do not sent TTL events or strobe words into the DI board when the MAP chassis is off. This can result in damaging the DI board, or cause it to start in a faulty state when the MAP box is turned on.

Hardware Troubleshooting

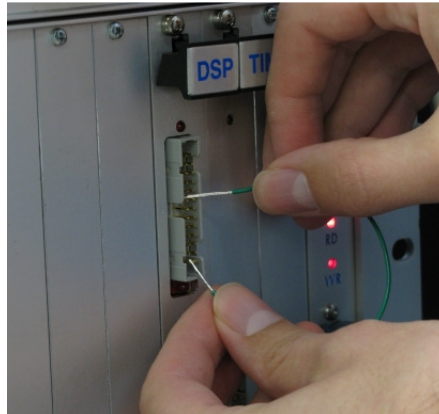
1) LED is always on, even if no events are input

This is a sign that the DI board started in a faulty state because one of the event lines was receiving a voltage when the MAP chassis was turned on. Unplug your DI cable, turn off the MAP chassis for 10 seconds, and turn it back on. This should put the DI board back into a normal state of functioning. If the red LED stays on, this might be a sign that the DI board is damaged.

2) LED never blinks, not tic marks are displayed in SortClient

The LED will blink when the individual events (in either mode 1 or 2) are triggered. In mode 3, the LED will blink when the strobe is triggered. Verify that the DI board is set to the correct mode and trigger polarity, and make sure that the jumpers for setting the mode and polarity are making firm contact with the pins.

If you're still not seeing any LED blinking or tics in SortClient, there is a hardware test to verify board functionality. Pin 26 of the DI input connector is a +5V pin that can be used to manually activate an input pin without needing an external behavioral system. Take a small piece of wire bare at both ends and short pin 26 to an event input pin (mode 1 or 2) or the INPSTRB (input strobe) pin (mode 2 or 3).



Mode 1: Shorting pin 26 to pins 3-16 will show tics on events 3-16

Mode 2: Shorting pin 26 to pins 3-10 will show tics on events 3-10, and shorting pin 26 to pin 20 will show a tic on the strobe event

Mode 3: Shorting pin 26 to pin 20 will show tics on the strobe event

Document History

May 25 2010 – V1.0

- Initial creation of document for troubleshooting common DI problems
- Pictures are of a DIO3B board
- Screenshots used RASPUTIN 2.6.2